

## REMARKS

Applicant thanks the Examiner for the telephonic interview of February 7, 2007 wherein rejection of claims 15-18, 26-32 and 35-36 were discussed based on the differences between the claimed invention and the cited prior art.

In response to the office action dated January 12, 2007, the pending claims (14, 17 and 18) are rejected as being anticipated by Litzkow et al.

Applicant has amended the claims to more clearly define the invention. Support for the amendment can be found at p. 14 of the '377 patent application.

The test for anticipation of an invention defined in a patent claim is a strict one. Anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. Furthermore, the parts must be arranged as in the claim. Absence of any element of the claim from the reference negates anticipation. Even one difference from the claim takes the patentability of the claimed invention out of the test of anticipation into the more factually complex tests for obviousness, which is discussed below.

Litzkow et al., U.S. Pat. No. 4,671,114, issued Jun. 9, 1987, discloses an apparatus for detecting insect larvae in agricultural commodities. Litzkow differs from the present apparatus in that the sensor itself is inserted into the agricultural products. In the presently claimed invention, only the detection member which is configured to be inserted into a potential infestation site without damaging the residential structure is inserted into the structure. The apparatus includes at least one sound-detecting diaphragm for holding an agricultural commodity; a sound wave guide connected at one end to the diaphragm for conveying sound waves from the diaphragm; a transducer connected to the other end of the wave guide for converting sound waves in the wave guide to electrical signals; an amplifier for amplifying the electrical signals (conventional electrical amplifier); and signal observation means connected to the amplifier for allowing the output of the amplifier to be observed. The apparatus does not include a sealed chamber.

COMPARISON		
	<u>Litzkow</u>	10/680,377
Sensor	Sensor incorporates wave guide  Problem: Wave guide resonates, thus distorting insect sound	No waveguide  No distortion of insect sound
Target	Commodity (fruit, wheat, oak, seed, etc.) not in a structure	Termite in building
Sound conversion	Picks up air-borne sound  ↓ Electronic signal	Picks up structure-borne sound  ↓ Air-borne sound  ↓ Electronic signal
Mechanical Amplification	No	Yes
Depth of detection	Only at the surface of contact	Deep into building wall structure  Probe/spike/needle provides a better interfacial acoustic match

The wave guide in this apparatus tends to have a detrimental effect because it acts as a resonator, distorting the insect sounds. The present invention, on the other hand, does not make use of a wave guide; instead, the microphone is positioned in a sealed chamber. The combination of diaphragm and a sealed chamber creates a unique mechanical amplification of the insect sound (it amplifies insect sounds only). On the other hand, a conventional electronic amplifier amplifies electronic noise as well as insect sounds.

Also, due to the complexity of building walls of multiple layers of construction, sound waves are strongly attenuated in these layered wall structures. The present invention incorporates a detection member, such as a hypodermic needle or the like which reaches substantially deeper into the interior of the multiple-layer walls, thus bypassing the multiple-layer boundary

conditions that cause attenuation. This detection member, therefore, results in minimal attenuation for the acoustic sensor, thus achieving a larger detection range (higher sensitivity).

Federal Circuit has explicitly addressed § 103 and followed the approach this Court set forth for applying that provision. Section 103 provides, in pertinent part:

A patent may not be obtained...if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. 35 U.S.C. § 103(a).

The Supreme Court in *Graham* held that:

While the ultimate questions of patent validity is one of law, the § 103 condition, which is but one of three conditions, each of which must be satisfied, lends itself to several basic factual inquiries. Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy.

*Graham v. John Deere, Co.*, 383 U.S. 1 (1966).

Thus, under *Graham*, the obviousness inquiry is highly fact specific, and requires an examination of the following: (1) the scope and content of the prior art; (2) the differences between the patented invention and what already existed in the prior art; (3) the ordinary level of skill of people working in the field; and (4) other objective evidence which may suggest that the invention would not have been obvious. The Court also warned lower courts to “guard against slipping into use of hindsight,”...and to resist the temptation to read into the prior art the teachings of the invention in issue.” 383 U.S. at 36. See also *Ashland Oil, Co. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 291 (Fed. Cir. 1985), cert. denied 475 U.S. 1017 (1986).

Moreover, the Federal Circuit’s so-called “teaching-suggestion-motivation” standard for obviousness is fully consistent with *Graham* and its progeny. Under that standard, there must be

some motivation or suggestion to combine specific prior art in such a way as to arrive at the particular combination disclosed in the patent at issue. See, e.g., *Ecolochem, Inc. v. Southern California Edison Co.*, 227 F.3d 1361, 1372 (Fed. Cir. 2000), cert. denied, 532 U.S. 974 (2001)<sup>1</sup>; *Ashland Oil*, 776 F.2d at 293. Importantly, as *Graham* instructed, the injection of hindsight in evaluating obviousness must be avoided; the requirement of a suggestion to combine prior art prevents hindsight reconstruction by accused infringers who try to use the patent-in-suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit. See, e.g., *Yamanouchi Pharmaceutical Co., Ltd. v. Danbury Pharmacal, Inc.*, 231 F.3d 1339, 1343 (Fed. Cir. 2000) (“the suggestion to combine requirement stands as a critical safeguard against hindsight analysis and rote application of the legal test for obviousness.”); *Ecolochem*, 227 F.3d at 137-72 (“Combining prior art references without evidence of a suggestion, teaching, or motivation simply takes the inventor’s disclosure as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight.”) (citations omitted); *Grain Processing Corp. v. American Maize-Products Co.*, 840 F.2d 902, 907 (Fed. Cir. 1988).

The rejections of pending claims 14 -19 as unpatentable under 35 U.S.C. § 103(a) are respectfully traversed, since a *prima facie* case of obviousness has not been made by the Examiner. To establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), each of three requirements must be met. First, the reference or references, taken alone or in combination, must teach or suggest each and every element recited in the claims. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third, a reasonable expectation of success must exist. Moreover, each of these requirements must “be found in the prior art, and not be based on applicant’s disclosure.” (See M.P.E.P. § 2143 (8<sup>th</sup> Ed. 2001)). Applicant submits that these requirements have not been met for at least the following reasons:

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<sup>1</sup> Teleflex notes that this Court denied certiorari in *Ecolochem*. Indeed, as discussed below, the petition for a writ of certiorari in *Ecolochem* is virtually identical to KSR’s Petition in this case.

The present invention provides a sensitive acoustic-sensor means for detecting any sound from deep inside a complex building wall structure and for generating a signal in response to any sound so detected. The sensor first picks up structure-borne sound via the detection member probe/spike/hypodermic needle; the structure-borne sound is then converted into airborne sound; and the microphone then converts this airborne sound into an electronic signal. This process differentiates our device from the above identified patent: that device simply picks up air-borne sounds and converts them into electronic signals, whereas the present invention picks up structure-borne sound, converts the structure-borne sound to air-borne sound, then converts the air-borne sound into an electronic signal.

None of the above identified patents or prior art discloses or suggests the present invention. More specifically, nothing in the known prior art discloses or suggests an apparatus for detecting termites in building wall structures that includes a detection member, such as a hypodermic needle as well as a combination of a mechanical amplification means.

Claims 26 – 32 stand rejected as being anticipated by Vick et al. (U.S. patent 5,005,410).

The test for anticipation of an invention defined in a patent claim is a strict one. Anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. Furthermore, the parts must be arranged as in the claim. Absence of any element of the claim from the reference negates anticipation. Even one difference from the claim takes the patentability of the claimed invention out of the test of anticipation into the more factually complex tests for obviousness, which is discussed below.

Vick et al., U.S. Pat No. 5,005,416, issued Apr. 9, 1991, discloses an apparatus for detecting insect infestation in agricultural commodity. The apparatus includes a pitfall probe trap and sound detecting piezo film.

The rejections of pending claims 26-32 as unpatentable under 35 U.S.C. § 103(a) are respectfully traversed, since a *prima facie* case of obviousness has not been made by the Examiner. To establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), each of three requirements must be met. First, the reference or references, taken alone or in combination, must teach or suggest each and every element recited in the claims. Second, there

must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third, a reasonable expectation of success must exist. Moreover, each of these requirements must “be found in the prior art, and not be based on applicant’s disclosure.” (See M.P.E.P. § 2143 (8<sup>th</sup> Ed. 2001)). Applicant submits that these requirements have not been met for at least the following reasons:

Pitfall probe traps are commonly used in the grain industry to detect insect infestations. Insect infestation is commonly detected by burying such traps in grain, and capturing adult insects that wander into the perforated top part of the trap it then fall into the reservoir located at the bottom of the trap. As such, the sensor cannot be sealed as it needs to allow the insect to enter the trap. Similarly, the entire sensor is deposited in the grain reservation. The trap is pulled from the grain mass by means of a rope and the number of insects captured is an indication of the level of the insect infestation in the grain. Once the trap is pulled up to check for insects, it is difficult or impossible to reinsert it in the grain to depths of more than a few feet. Vick invention allows the remote detection of the presence of insects without pulling the trap from the agricultural commodity by placing a detector at the lower terminus of the second interior chamber. Insect once fall into the pitfall can come in direct contact with the detector (sensor), any insect activity sound can be picked up by the detector. According to Vick, useable detector include piezo film or piezo disc (Col 5, Ln 39-43).

VICK et al.		10/680,377
Apparatus	Pitfall trap  Piezo film/disc	Solid spike/probe/needle  Microphone
Target	Commodity (rice, corn, wheat, oak, seed, etc.)	Termite in building
Sound Conversion	Picks up structure borne sound ↓ Electronic signal	Picks up structure-borne sound ↓ Air-borne sound ↓ Electronic signal

Mechanical Amplification	No	Yes
Depth of detection	Only at the surface of contact	Deep into building wall structure  Probe/spike/needle provides a better interfacial acoustic match

## CONCLUSION

The present invention provides a sensitive acoustic-sensor means for detecting any sound from deep inside a complex building wall structure and for generating a signal in response to any sound so detected. The sensor first picks up structure-borne sound via the probe/spike/hypodermic needle; the structure-borne sound is then converted into airborne sound; and the microphone then converts this airborne sound into an electronic signal. This process differentiates our device from the above identified patent: that device simply picks up structural-borne sounds and converts them into electronic signals, whereas the present invention picks up structure-borne sound, converts the structure-borne sound to air-borne sound, then converts the air-borne sound into an electronic signal.

None of the above identified patent or prior art discloses or suggests the present invention. More specifically, nothing in the known prior art discloses or suggests an apparatus for detecting termites in building wall structures that includes a probe/spike/hypodermic needle as well as a combination of a sealed chamber and a diaphragm.

Applicants respectfully submit that the pending claims are now in condition for allowance.

Respectfully Submitted,

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